

## Module 3. Supplementary Pain Theory

PALLIUM

Module 3  
**SUPPLEMENTARY PAIN THEORY**

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Types of Opioids

■ Codeine:

- Codeine itself is not an analgesic
- Enzyme needed to convert codeine to morphine
- 3-10% of lack this enzyme and get little analgesic effect
- Codeine is the only opioid with a maximum dose  $\approx$  300mg/day

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Types of Opioids

■ Morphine

- Readily absorbed by GI tract
- Active metabolites (analgesia and neurotoxicity)
- Metabolites may accumulate in renal failure or frail elderly
- Available in oral, parenteral, rectal forms

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### Types of Opioids

- Hydromorphone
  - Synthetic “sister” to morphine
  - Active metabolites (analgesia and neurotoxicity)
  - Better tolerated in elderly, renal failure
  - Available in oral and parenteral forms

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### Types of Opioids

- Fentanyl
  - Transdermal - 25, 50, 75, 100mcg strengths
  - No active metabolites
  - Better tolerated in elderly, renal failure, compliance problems
  - Need short-acting opioid for breakthrough pain
  - Sublingual forms used for incident pain

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### DURAGESIC: Pharmacokinetics

- Available in 25, 50, 75, and 100 mcg/hr patches\*
- Uptake time to steady-state levels:
  - No detectable fentanyl in serum for first 2 hours
  - Generally, 12 to 24 hours to steady state
  - Some patients take up to 72 hours to reach steady state
- Duration of action: 72 hours
  - A small number of patients may require may require change of patch every 48 hours.
- Elimination half life: 17 hours
  - Allows serum drug level to remain steady while patches are changed

\*Use only 25 mcg patch and titrate up for patients moving from weak to strong opioids

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### Fentanyl/Sufentanil

- Sublingual Fentanyl/Sufentanil
  - Used for fast acting short relief e.g., Incident
  - Onset 5-10 min.
  - Peak 22 min.
  - Duration 40-45 min.
  - Use parenteral solution dripped under tongue held as long as possible
  - Dosage 5-10 ug. Initially to 50-100 ug. prn

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### Types of Opioids

- Oxycodone
  - Synthetic opioid
  - Available alone or in combination
  - No active metabolites
  - Well tolerated in elderly and renal failure

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### Types of Opioids

- Methadone
  - No active metabolites
  - generally used for difficult pain syndromes
  - opioid receptor agonist and NMDA receptor antagonist
  - unpredictable and long half life, 15-120hrs
  - Difficult to initiate if not familiar with pharmacology
  - Maintenance is safe and effective
  - Special license required to prescribe

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### Opioids and opioid formulations in Canada

Opioid	Quick-release formulations and routes	Slow/controlled release formulations and routes
Codeine	PO	Codein Contin <sup>®</sup> , PO
Morphine	PO, SC/IV, PR Tabs, suspension	MS Contin <sup>®</sup> , MElon <sup>®</sup> , Kadian <sup>®</sup> , PO, PR
Hydromorphone	PO, SC/IV	Hydromorph Contin <sup>®</sup>
Oxycodone	PO, SC/IV	OxyContin <sup>®</sup>
Fentanyl	SC/IV	Transdermal Patches
Methadone	PO/PR <sup>®</sup>	(IV)

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### Opioid formulations

#### Short-acting formulations

- unstable situations
- opioid-naïve patients

#### Long-acting formulations

- reserve for stable situations

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### Starting doses of opioids in frail elderly

- Hydromorphone 0.5-1mg q4hr
- Oxycodone 2.5-5mg q4hr
- Morphine 2.5-5mg q4hr
- Fentanyl transdermal – 25mcg patch is excessive in opioid naïve

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